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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/750,070 | 12/29/2000 | Gin Liu | 91436-332 | 6230 |

22463 7590 01/21/2005

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EXAMINER

JAMAL, ALEXANDER

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2643

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,070

Applicant(s)

LIU, GIN

Examiner

Alexander Jamal

Art Unit

2643

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Based upon the submitted amendment (9-23-2004), the examiner notes that claims 1,2,4-9,15,19 have been amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1,2,4-22** rejected under 35 U.S.C. 103(a) as being unpatentable over Liu Et al. (6266395), and further in view of McGhee et al. (6658049).

As per **claims 1,2,4,10,21,22**, Liu discloses a method to assess if a standard subscriber loop qualifies for DSL service (ABSTRACT). One step comprises modeling a representative loop of the subscriber loop (or segment) based on electrical characteristics that are determined at the CO (Col 2 line 45 to Col 3 line 45) (Col 4 lines 20-34). The subscriber loop may be modified with a repeater (Fig. 1 repeater 128). The repeater modified loop model has its bandwidth estimated to see if it is or is not suitable for an xDSL service. Liu also measures cable segments for electrical characteristics (Col 3 lines 1-15). Liu also discloses that the qualification (including the noise margin) could be

done in a subscriber loop with a repeater (Fig. 1). However Liu does not disclose using the method to determine the position of a DSL enabled repeater such that the loop segment between the repeater and CO qualifies for DSL service.

McGhee discloses an xDSL enabled repeater system (ABSTRACT) comprising a repeater that may be installed in a cable loop to enable DSL service (Col 1 lines 10-62). He further teaches that the DSL service is limited by the length (and all associated electrical interference) of the subscriber loop. It would have been obvious to one of ordinary skill in the art at the time of this application that Liu's method of measuring and qualifying cable segments could be used with an xDSL repeater to determine the repeater location on the loop for the reason that the loop qualification method will allow the repeater (or multiple repeaters) to be placed at the maximum possible distance while maintaining electrical integrity for DSL signals. This will maximize the efficiency of the repeater deployment by minimizing the number of repeaters/segments required for a particular loop.

As per **claim 15**, claim 15 rejected for the same reasons as claim 1 above, and the additional disclosure by Liu of a processor (Col 2 lines 48-65) able to perform the steps of claim 1.

As per **claims 19,20,5,6**, claims 19,20 rejected for the same reasons as claims 1,2 above, and the additional disclosure by Liu that the noise margin is approximated

(calculated) (Col 9 line 10 to Col 10 line 65). The Computer readable medium is inherent to the system for the purpose of providing instructions to the processor.

As per **claims 7-9,16-18**, Liu discloses that the subscriber loop record of a database may be screened to disqualify a loop for DSL service, based upon an electrical characteristic or disqualifying condition (intercepted line, incompatible device or service) (Col 11 lines 30-55).

As per **claims 11-14**, the claims are rejected for the same reasons as claim 10 above, and the fact that setting up the repeater locations to maximum distance inherently comprises the steps of qualifying the loop at various locations until the maximum acceptable level is found, and repeating the process for every repeater/segment of the loop for the reason that the number of repeaters/segments required for a particular loop will be minimized.

4. **Claim 3** rejected under 35 U.S.C. 103(a) as being unpatentable over Liu Et al. (6266395), and McGhee et al. (6658049).

As per **claim 3**, Liu discloses that his method may be applied to xDSL loops (including HDSL). However, Liu does not disclose the method being used in an HDSL2 loop.

It would have been obvious to one of ordinary skill in the art at the time of this application that the qualification method could be used on ANY xDSL signaling (such as HDSL2) for the reason that the method works with any xDSL system.

Response to Arguments

5. Applicant's arguments with respect to claims 1-9,15-20 have been considered but are moot in view of the new ground(s) of rejection.
6. Applicant's arguments with respect to claims 10-14,21,22 have been fully considered but they are not persuasive.

As per applicant's arguments (remarks pages 8,9) concerning the motivation to combine the Liu and McGhee references, the examiner contends that there is motivation to combine the references. Liu discloses the modeling of an xdsl loop to obtain electrical characteristics of the loop by **cable segment** (LIU: Col 3 lines 1-15) and using the information to qualify the loop for xdsl service. The cable segment comprises the distance between each loop element. Liu discloses that the elements may be repeaters.

McGhee teaches the use of the xDSL repeater in order to overcome the fact that signal attenuation increases as the loop length increases (MCGHEE: Col 1 lines 55-62). As such, one of the primary motivations of McGhee is to increase the loop length with the use of xDSL repeaters. Liu's model analyzes each cable segment, in order to qualify the loop while taking into account the xDSL repeaters taught by McGhee. Examiner contends that it is common sense (as such it would be obvious to one skilled in the art) to

space the repeaters at their maximum distance (keeping in mind performance issues such as data rate (LIU: Col 7 lines 60-67)), as the whole purpose of repeaters (and the motivation behind McGhee's invention) is to increase the maximum loop length on which a customer may receive a certain level of service. Repeaters are used to regenerate attenuated/noisy signals. As such, it does not make sense for repeaters to be used in situations where the signals are not attenuated/distorted to the maximum level (ie. at the maximum distance cable segment between repeaters) that they may be repeated.

Conclusion:

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ
January 12, 2005


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600